

REMARKS

Favorable reconsideration of this application is respectfully requested.

Claims 26-37 are pending in this application. Claims 1-25 are herein canceled without prejudice and new claims 26-27 are added for examination. Applicants submit new claims 26-27 are clear from the original disclosure, see for example Figures 8 and 9 and the corresponding discussions thereto, and thus are not believed to add any new matter.

Claims 3-5 and 15-16 were objected to for informalities. The specification was objected to for informalities. Claims 1-12 were rejected under 35 U.S.C. § 112, second paragraph. Claim 25 was rejected under 35 U.S.C. § 101. Claims 1, 13, and 25 were rejected under 35 U.S.C. § 102(e) as anticipated by the Admitted Art in the specification. Claims 2-7, 10, 14-19, and 22 were rejected under 35 U.S.C. § 103(a) as unpatentable over applicants' Admitted Art in view of U.S. patent 6,986,139 to Kubo et al. (herein "Kubo"). Claims 8-9, 11, 20-21, and 23 were rejected under 35 U.S.C. § 103(a) as unpatentable over applicants' Admitted Art in view of U.S. patent application publication 2004/0083462 to Gschwind et al. (herein "Gschwind"). Claims 12 and 24 were rejected under 35 U.S.C. § 103(a) as unpatentable over applicants' Admitted Art in view of U.S. patent 6,199,093 to Yokoya. The above-noted objections and rejections are traversed by the present response as now discussed.

Addressing first the objection to claims 3-5 and 15-16 as noted in paragraphs 2 and 3 of the Office Action, those claims are herein canceled without prejudice and new claims 26-37 have been written to address those objections.

Addressing now the objection to the specification noted in paragraphs 4-6 of the Office Action, the Title is herein amended to be more clearly descriptive of the claimed invention, the specification is amended to make another clarification, and none of new claims 26-37 recites the term "computer usable medium".

The objections to the specification noted in paragraphs 4-6 of the Office Action are thereby believed to be addressed by the present response.

Addressing now the rejection of claims 1-12 under 35 U.S.C. § 112, second paragraph noted in paragraph 7 of the Office Action, as noted above claims 1-12 are herein canceled without prejudice, and thereby that rejection is obviated by the present response. Further, new claims 26-27 have been written to avoid the language noted as unclear in claims 1-12.

Addressing now the rejection of claim 25 under 35 U.S.C. § 101 noted in paragraph 8 of the Office Action, claim 25 is herein canceled without prejudice, and thereby that rejection is obviated by the present response. Further, new claim 34 has been written to address the objection in original claim 25 by being directed to a “computer readable storage medium”, which applicants respectfully submit is clearly directed to statutory subject matter.

Addressing now the above-noted prior art rejections, the claims as currently written are believed to distinguish over the applied art.

New independent claim 26 is directed to a task execution method of allocating a plurality of tasks to a plurality of processors and then causing the processors to execute the task, the method comprising:

a first operation of allocating all of the tasks to the processors such that each of the tasks is allocated to a processor having an instruction set that is equal to an instruction set used for describing said each of the tasks;

a second operation of sequentially executing processes to determine whether the program is improved in execution efficiency when an allocation destination of each of the tasks is changed from the processor to which said each of the tasks is allocated in the first operation to another processor;

a third operation of changing an allocation destination of a task that is determined to be one improving in execution efficiency to said another processor; and

Independent claim 34 recites the same above-noted operations being performed as in independent claim 26.

New independent claim 30 is directed to a multiprocessor system including:

a provisional allocation device which provisionally allocates all of a plurality of tasks to the processors such that each of the tasks is allocated to a processor having an instruction set that is equal to an instruction set used for describing said each of the tasks, the tasks composing a program and each of the tasks being described using any one of the different instruction sets;

a determination device that sequentially executes processes to determine whether the program is improved in execution efficiency when an allocation destination of each of the tasks is changed from the processor to which said each of the tasks is allocated to another processor; and

an allocation destination changing device that changes an allocation destination of a task that is determined to be one improving in execution efficiency to said another processor,

The above-noted features are believed to clearly distinguish over the applied art.

Each of the outstanding rejections relies on the Admitted Art in the specification as the primary reference, but applicants respectfully submit the claims as currently written clearly distinguish over that Admitted Art.

As noted in the specification with respect to operations in normal multiprocessor systems,

In the normal multiprocessor system, an individual task is allocated to the processor having the same instruction set as is used for describing the program module of this task. If task allocation is performed in the hetero-multiprocessor system, using the task allocating method in the ordinary multiprocessor system as a standard for judgment, inter-processor communications will occur frequently due to the inter-task dependency, that is, due to the order of execution of tasks. Due to an overhead of such frequent inter-processor communications, a serious problem, that is, deterioration in program execution efficiency, occurs in the hetero-multiprocessor system.¹

The specification also states in comparing the present invention to the prior art the following:

¹ Specification at page 4, lines 4-16.

In the prior-art task allocation scheme, a task is allocated to the processor having the same instruction set as is used for the description of the program module necessary for executing the task. If this allocation method is applied to the hetero-multiprocessor system, inter-processor data communications will occur frequently and the program execution efficiency deteriorates.

In order to alleviate this problem, the status of “provisional allocation” is given to the conventional allocation scheme in which a task is allocated to a processor having the same instruction set as is used for describing the program module necessary for executing the task. After the completion of the “provisional allocation”, the allocation of tasks to the processors is changed and optimized to enhance the program execution efficiency.²

From the above-noted disclosures applicants submit the Admitted Art is clearly deficient with respect to the claims as currently written as the Admitted Art does not disclose or suggest any type of sequentially executing processes to determine whether a program is improved in execution efficiency, and further that the allocation destination can then be changed to improve efficiency as needed.

The Admitted Art provides an initial allocation of task matching a processor to an instruction set, but does not then sequentially execute processes to determine whether there can be an improvement in execution efficiency and changing an allocation destination if an execution efficiency can be improved.

In such ways, applicants respectfully submit the Admitted Art does not disclose or suggest the features now recited in new claims 27-36, and thereby the claims dependent therefrom.

Moreover, applicants submit no further disclosures in the other cited art to Gschwind or Yokoya were cited with respect to the above-noted features, and no further disclosures in Gschwind or Yokoya are believed to cure the above-noted deficiencies of the Admitted Art.

² Specification at page 17, lines 2-18.

In view of the present response, applicants respectfully submit the claims as currently written are allowable over the applied art.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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